AIR QUALITY PERMIT

Issued To:	Kerr-McGee Oil & Gas Onshore LP Steinbeisser 21-23H 1999 Broadway, Suite 3700 Denver, CO 80202	Permit: #3365-01 Administrative Amendment (AA) Received: 2/21/06 Department Decision on AA: 3/28/06 Permit Final: 4/13/06 AFS: #083-0047

An air quality permit, with conditions, is hereby granted to Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

The facility is located in the NE¼ of the NW¼ of Section 23, Township 23 North, Range 57 East, in Richland County, Montana. The facility is an oil and gas production tank facility known as the Steinbeisser 21-23H battery. A complete list of the permitted equipment is contained in Section I.A of the Permit Analysis.

B. Current Permit Action

On February 21, 2006, the Department of Environmental Quality- Air Resources Management Bureau (Department) received a request to change the corporate name on Permit #3365-00 from Westport Oil & Gas to Kerr-McGee. The current permit action changes the corporate name. Permit #3365-01 replaces Permit #3365-00.

SECTION II: Conditions and Limitations

A. Emission Control Requirements

1. Kerr-McGee's Steinbeisser 21-23H battery shall be limited to 146,000 barrels (bbl) of oil production during any rolling 12-month time period (ARM 17.8.749).

2. Kerr-McGee's Steinbeisser 21-23H shall be limited to 73 million cubic feet (MMCF) of natural gas production during any rolling 12-month time period (ARM 17.8.749).

3. Kerr-McGee shall control Volatile Organic Compound (VOC) emissions from the heater treater unit by routing the emissions (separated gas) to a pipeline. During emergencies or facility upsets, the emissions shall be routed to a flare (ARM 17.8.752).

4. Kerr-McGee shall control VOC emissions from the production tanks by routing emissions to a flare (ARM 17.8.752).

5. Kerr-McGee shall control VOC emissions from truck loading operations by using submerged loading to transfer the oil from the production tanks to the tanker trucks (ARM 17.8.752).

6. Kerr-McGee shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304).

7. Kerr-McGee shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

8. Kerr-McGee shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precaution limitation in Section II.A.7 (ARM 17.8.749).

B. Inspection and Repair Requirements

1. Each calendar month, all fugitive piping components (valves, flanges, pump seals, open-ended lines) shall be inspected for leaks. For purposes of this requirement, detection methods incorporating sight, sound, or smell are acceptable (ARM 17.8.105 and ARM 17.8.749).

2. Kerr-McGee shall (ARM 17.8.105 and ARM 17.8.749):

   a. Make a first attempt at repair for any leak not later than five calendar days after the leak is detected; and

   b. Repair any leak as soon as practicable, but no later than 15 calendar days after it is detected, except as provided in Section II.B.3.

3. Delay of repair of equipment, for which a leak has been detected, will be allowed if the repair is technically infeasible without a source shutdown. Such equipment shall be repaired before the end of the first source shutdown after detection of the leak (ARM 17.8.749).

C. Operational Reporting Requirements

1. Kerr-McGee shall supply the Department with annual production information for all emission points, as required by the Department in the annual Emission Inventory request. The request will include, but is not limited to, all sources of emissions identified in the Emission Inventory contained in the Permit Analysis and sources identified in Section I.A of the Permit Analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the Emission Inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. Kerr-McGee shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be

submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. Kerr-McGee shall document, by month, the oil production of the facility. By the 25th day of each month, Kerr-McGee shall calculate the oil production of the facility for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.1. The information for each of the previous months shall be submitted along with the annual Emission Inventory (ARM 17.8.749).

4. Kerr-McGee shall document, by month, the natural gas production of the facility. By the 25th day of each month, Kerr-McGee shall calculate the natural gas production of the facility for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.2. The information for each of the previous months shall be submitted along with the annual Emission Inventory (ARM 17.8.749).

D. Recordkeeping Requirements

1. A record of each monthly leak inspection required by Section II.B.1 of this permit shall be kept on file with Kerr-McGee. Inspection records shall include, at a minimum, the following information (ARM 17.8.749):

   a. Date of inspection;

   b. Findings (may indicate no leaks discovered or location, nature, and severity of each leak);

   c. Leak determination method;

   d. Corrective action (date each leak repaired and reasons for any repair interval in excess of 15 calendar days); and

   e. Inspector's name and signature.

2. All records compiled in accordance with this permit must be maintained by Kerr-McGee as a permanent business record for at least five years following the date of the measurement, must be available for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

E. Testing Requirements

1. The Department may require testing (ARM 17.8.105).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

SECTION III: General Conditions

A. Inspection – Kerr-McGee shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Kerr-McGee fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Kerr-McGee of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Kerr-McGee may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement – Construction must begin within three years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis
Kerr-McGee Oil & Gas Onshore LP
Steinbeisser 21-23H
Permit #3365-01

I. Introduction/Process Description

Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) operates an oil and gas tank battery facility located in the northeast 1/4 of the northwest 1/4 of Section 23, Township 23 North, Range 57 East, in Richland County, Montana. The facility, known as Steinbeisser 21-23H is designed for a maximum storage capacity of 1600-barrels (bbl) of oil. The maximum production rate of the well that supplies the facility is initially expected to be 400 barrels (bbl) oil per day and 200 thousand cubic feet (mcf) of gas per day with a rapid decline from initial production. Therefore, emission estimates are based on the maximum capacity of the well, or 400 bbl per day and 200 mcf of gas per day.

A. Permitted Equipment

The facility consists of the following equipment:

Source	Description	Year Manufactured	Year Installed
OT-1	Connor 400- bbl Production Oil Tank	2004	2004
OT-2	Connor 400- bbl Production Oil Tank	2004	2004
OT-3	Connor 400- bbl Production Oil Tank	2004	2004
OT-4	Connor 400- bbl Production Oil Tank	2004	2004
WT-1	Connor 400 bbl Produced Water Tank	2004	2004
F	Custom Vertical Gas Flare	2004	2004
TL	Truck Loading	N/A	2004
HTB	Connor Heater Treater Burner (500 mbtu/Hr)	Unknown	2004
PUE	60-hp Lufkin Electric Motor	Unknown	2004

B. Source Description

The Steinbeisser 21-23H well pumped with an electric driven motor supplies a commingled hydrocarbon liquid stream through tubing. The commingled liquid stream, containing natural gas, crude oil, and water is routed to a 500,000 British thermal units (Btu) per hour heater treater unit. This heater treater unit separates natural gas, crude oil, and water from the commingled liquid stream. The 400 bbl "produced water" tank receives water from the heater treater. A pipeline receives the natural gas separated from the crude oil in the heater treater unit. The four "produced oil" tanks receive the crude oil from the heater treater unit. The oil tanks are all interconnected using piping and are accessible by sealed thief hatches. The production oil tanks collect crude oil until adequate volumes accumulate. The crude oil is measured and pumped into a tank truck for transport to a sales facility. All of the oil tanks vent through one common vent. The hydrocarbon vapors from the produced oil tanks are routed to a custom vertical gas flare. The water from the produced water tank is transported by truck to an appropriate disposal site.

C. Permit History

On August 16, 2005, the Department of Environmental Quality- Air Resources Management Bureau (Department) issued Permit #**3365-00** to Westport Oil & Gas Company for the construction and operation of the Steinbeisser 21-23H Battery. The facility is an oil and gas production tank facility.

D. Current Permit Action

On February 21, 2006, the Department received a request from Kerr-McGee for an administrative amendment to Permit #3365-00 to reflect the change in company name from Westport Oil & Gas Company to Kerr-McGee. **Permit #3365-01** replaces Permit #3365-00.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   Kerr-McGee shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than four hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

Kerr-McGee must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Kerr-McGee shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) 60, Standards of Performance for New Stationary Sources (NSPS).

40 CFR 60, Subpart K – Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978, does not apply because the facility was constructed after May 19, 1978.

40 CFR 60 Subpart Ka – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after May 18, 1978, and prior to July 23, 1984, does not apply because the tanks were constructed after July 23, 1984.

40 CFR 60, Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, is not applicable to any of the tanks at the facility because this subpart does not apply to vessels with a design capacity less than or equal to 1,589.874 cubic meters (m^3) used for petroleum or condensate stored, processed, or treated prior to custody transfer. The design capacity of the entire facility is 190.81 m^3.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63, as applicable:

   40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities. Owners or operators of oil and natural gas production facilities, as defined and applied in 40 CFR Part 63, shall comply with the applicable provisions of 40 CFR Part 63, Subpart HH. Based on the information submitted by Kerr-McGee, the Steinbeisser 21-23H Facility is not subject to the provisions of 40 CFR Part 63, Subpart HH because the facility is not a major source of HAPs.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Kerr-McGee was not required to submit an application fee because this permitting action is an administrative amendment.

2. ARM 17.8.505 Air Quality Permit Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. The Kerr-McGee facility has a PTE greater than 25 tons per year of Volatile Organic Compounds (VOC); therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. Kerr-McGee was not required to submit a permit application for this permitting action because it is an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that Best Available Control Technology (BACT) shall be used. The BACT analysis is discussed in Section III of this Permit Analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Kerr-McGee of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an Environmental Impact Statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than one year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

a. PTE > 100 tons per year of any pollutant;

b. PTE > 10 tons per year of any one Hazardous Air Pollutant (HAP), PTE > 25 tons per year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

c. PTE > 70 tons per year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3365-01 for Kerr-McGee, the following conclusions were made:

a. The facility's PTE is less than 100 tons per year for any pollutant.

b. The facility's PTE is less than 10 tons per year for any one HAP and less than 25 tons per year for all HAPs.

c. This source is not located in a serious PM_{10} nonattainment area.

d. This facility is not subject to any current NSPS.

e. This facility is not subject to any current NESHAP standards.

f. This source is not a Title IV affected source, nor a solid waste combustion unit.

g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that Kerr-McGee will be a minor source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for any new or altered source. Kerr-McGee shall install on the new or altered source the maximum air pollution control capability that is technologically practicable and economically feasible, except that BACT shall be used. A BACT determination was not required for the current permit action because the permit change is considered an administrative permit change. A complete BACT determination was included in the previous permit, #3365-00.

IV. Emission Inventory

		Tons/year				
Source I.D.#	**Source**	**PM**	**NO_x**	**CO**	**VOC**	**HAPs**
OT-1 OT-2 OT-3 OT-4	400-bbl Production Oil Tanks					
F-1	Vapor Combustor (Flare)		8.51	16.99	72.23	0.66
HTB	Heater Treater Burner	0.03	0.33	0.28	0.02	
TL	Truck Loading				8.33	0.08
FE	Fugitive Emissions-Piping				4.48	
Totals		**0.03**	**8.84**	**17.27**	**85.06**	**0.74**

*The facility is designed for a maximum capacity of 1600-barrels. The maximum production rate of the well that supplies the facility is initially expected to be 400 bbls oil per day and 200 mcf of gas per day with a rapid decline from initial production. Therefore, emission estimates are based on the maximum capacity of the well, or 400 bbl oil per day and 200 mcf of gas per day.

(4) 400-bbl Commingled Production Oil Tanks (OT-1, OT-2, OT-3, and OT-4)

Working and Breathing Losses

*Production oil tanks are commingled (share common vent line); therefore, act as single tank.

Production Oil Tanks VOC Emissions: = 5,436.60 lb/yr * 0.0005 ton/lb = 2.72 ton/yr

*Emissions calculated using EPA Tanks v.4.0 Storage Tank Emissions Calculation Software.
*Emissions sent to flare and are included in flare calculation; therefore, not included in table.

Flash Gas Stream

*Flashing VOC Emission Calculations for Storage Tanks
*Vasquez – Beggs Solution Gas/Oil Ratio Correlation Method

Inputs:		Constraints:
API	Stock Tank API Gravity	16 > API > 58 ◦API
Pi	Separator Pressure (psig)	50 > Pi >5250 (psia)
Ti	Separator Temperature (◦F)	70 >Ti > 295 (◦F)
SGI	Separator Gas Gravity	0.56 > SGI > 1.18 (MW/28.97)
Q	Stock Tank Barrels of Oil per day (BOPD)	None > Q > None (BOPD)
MW	Stock Tank Gas Molecular Weight	50 (lb/lb-mole)
VOC	VOC Fraction of Stock Tank Gas (C3+)	0.75 %VOC Fraction
Patm	Atmospheric Pressure (psia)	20 > Rs > 2070 (scf/STB)

$RS = (C1 * SGx * Pi^{C2}) \exp((C3 * API) / (Ti + 460))$

Where:

Rs = Gas/Oil Ratio of liquid at pressure of interest
SGx = Dissolved gas gravity at 100 psig
Pi = Pressure of initial condition (psia)
API = API Gravity of liquid hydrocarbon at final condition
Ti = Temperature of initial condition (◦F)

Constants		API Gravity < 30	API Gravity >= 30
C1	=	0.0362	0.02
C2	=	1.0937	1.19
C3	=	25.724	23.9

SGx = Dissolved gas gravity at 100 psig
SGx = Sgi [1.0 + 0.00005912 * API * Ti * Log (Pi/114.7)]
SGx = 1.00
* API >= 30 used as input

Rs = 20.27 scf/bbl
THC = Rs * Q * MW * 1/379 scf/lb-mole * 365 day/yr * 1 ton/2000 lb

Where:

THC = Total Hydrocarbon (ton/yr)
Rs = Solution Gas/Oil Ratio (Scf/STB)
Q = Oil Production Rate (bbl/day)
MW = Molecular Weight of Stock Tank Gas (lb/lb-mole)
379 = Volume of 1 lb-mole of gas at 14.7 psia and 60 ◦F

THC = 195.21 ton/yr

* Control Efficiency = 100% (Sales Pipeline)
VOC = THC * VOC % of C3+ in Stock Vapor
VOC = 195.21 ton/yr * 0.75 %C3+
VOC = 146.41 ton/yr * (1.0-1.0) (Will assume all gas to flare for flare calculation – upset flaring)
VOC = 0.00 ton/yr

Custom Vertical Gas Flare (F)

Gas Heating Value: 1690 Btu/Scf (Company Information)
Fuel Gas Usage:
Tank Vapor: 0.62 lb VOC/hr * 1/0.75 VOC fraction * 1/50.0 MW (lb/lb/mole) * 379 Scf/lb-mole = 6.27 Scf/hr (Tanks v.4.0)

Heater Treater (Flash gas): 20.27 Scf/bbl * 400 bbl/day * 1 day/24 hr = 337.83 Scf/hr (Vasquez/Beggs)
Pilot: 25 Scf/hr (Company Information)
Total: 369 Scf/hr
Requested Limit: 200 Mcfd or 73 MMScf/yr or 8,333 Scf/hr
*(*Requested limit to include produced gas quantities)*

VOC Control Efficiency: 98% (Flare)
VOC Weight Fraction: 0.75 (Company Information)
HAP Weight Fraction: 0.0068 (Worst Case-Same Oil Field)
H_2S Weight Fraction: 0.001 (Worst Case-Same Oil Field)

NO_x Emissions
Emission Factor: 0.1380 lb/MMBtu (CMA Flare Study)
Calculations: 8333 Scf/hr * 1690 Btu/Scf * 0.1380 lb/MMBtu = 1.94 lb/hr
1.94 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 8.51 ton/yr

CO Emissions
Emission Factor: 0.2755 lb/MMBtu (CMA Flare Study)
Calculations: 8333 Scf/hr * 1690 Btu/Scf * 0.2755 lb/MMBtu = 3.88 lb/hr
3.88 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 16.99 ton/yr

VOC Emissions
Calculations 8333 Scf/hr * 1/379 Scf/lb-mole * 50 MW (lb/lb-mole) * 0.75 VOC fraction = 824.51 lb/hr
824.51 lb/hr* 8760 hr/yr * 0.0005 ton/lb* (1.0-0.98) = 72.23 ton/yr

HAP Emissions
Calculations 8333 Scf/hr * 1/379 Scf/lb-mole * 50 MW (lb/lb-mole) * 0.0068 HAP fraction = 7.48 lb/hr
7.48 lb/hr* 8760 hr/yr * 0.0005 ton/lb* (1.0-0.98) = 0.66 ton/yr

Heater Treater Burner (HT)

Fuel Heating Value: 1690 Btu/scf (Company Information)
Fuel Consumption: 0.50 mmBtu/hr (Maximum Rated Design Capacity)
Fuel Usage: 1 mmscf/MMBtu * 0.5 mmBtu/hr * 8760 hr/yr = 3.98 mmScf/yr

PM Emissions (PM emissions include PM_{10} and $PM_{2.5}$):
Emission Factor: 7.6 lb/mmScf (AP-42, Chapter 1, Table 1.4-2, 7/98)
Calculations: 3.98 mmscf/yr * ((7.6 lb/mmscf * 1690 Btu/scf) / 1020 Btu/scf) * 1 ton/2000 lb = 0.025 ton/yr

NO_x Emissions:
Emission Factor: 100 lb/mmScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 3.98 mmscf/yr * ((100 lb/mmscf * 1690 Btu/scf) / 1020 Btu/scf) * 1 ton/2000 lb = 0.330 ton/yr

CO Emissions:
Emission Factor: 84 lb/MMScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 3.98 MMscf/yr * ((84 lb/MMscf * 1690 Btu/scf) / 1020 Btu/scf) * 1 ton/2000 lb = 0.28 ton/yr

VOC Emissions:
Emission Factor: 5.5 lb/MMScf (AP-42, Chapter 1, Table 1.4-2, 7/98)
Calculations: 3.98 MMscf/yr * ((5.5 lb/MMscf * 1690 Btu/scf) / 1020 Btu/scf) * 1 ton/2000 lb = 0.018 ton/yr

SO_2 Emissions:
Emission Factor: 0.6 lb/MMScf (AP-42, Chapter 1, Table 1.4-1, 7/98)
Calculations: 3.98 MMscf/yr * ((0.6 lb/MMscf * 1690 Btu/scf) / 1020 Btu/scf) * 1 ton/2000 lb = 0.002 ton/yr

Truck Loading (TL)

VOC Emissions

Production = 146,000 bbl/yr * 42 gal/bbl * 1 yr/8760 hr = 700 gal/hr (maximum capacity of well)

$L_L = 12.46 * SPM/T$ (AP-42, Chapter 5, equation 1, page 5.2-4, 1/95)

Where:

L_L = loading loss, lb/10^3 gallons of liquid loaded
S = Saturation Factor from Table 5.2-1 = 0.60
P = true vapor pressure of liquid loaded (psia) from Table 7.1-2 = 7.2
M = molecular weight of vapors (lb/lb/mole) = 35
T = temperature of bulk liquid loaded in ºR (ºF + 460) = 520

L_L = 12.46 * 0.60 * 7.2 * 35 / 520 = 3.623 lb/1000 gal TOC

L_LVOC = 3.623 lb/1000 gal * (700 gal/hr) * (0.75 lb VOC / lb TOC) * (8760 hr/yr) * (0.0005 ton/lb) = 8.33 ton/yr

L_LHAP = 3.623 lb/1000 gal * (700 gal/hr) * (0.007 lb HAP/ lb TOC) * (8760 hr/yr) * (0.0005 ton/lb) = 0.08 ton/yr

Fugitive Emissions – Piping (12-FE)

VOC Emissions
Emission Factors from: Equipment Leak Factor for Oil and Gas Production Operations; American Petroleum Institute; TNRCC Memorandum 1/3/96

Gas

VOC Weight Fraction: 0.49 (Company Estimate)

Valves: 90 valves (Company Information)
Emission Factor: 0.00992 lb/hr - valve
Calculation: 90 valves * 0.00992 lb/hr-valve * 0.49 * 8760 hr/yr * 0.0005 ton/lb = 1.92 ton/yr

Relief Valves (Other): 9 relief valves (Company Information)
Emission Factor: 0.01940 lb/hr – relief valve
Calculation: 9 relief valves * 0.01940 lb/hr – relief valve * 0.49 = 0.086
0.086 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.38 ton/yr

Flanges: 58 flanges (Company Information)
Emission Factor: 0.00086 lb/hr - flange
Calculation: 58 flanges * 0.00086 lb/hr-flange * 0.49 * 8760 hr/yr * 0.0005 ton/lb = 0.11 ton/yr

Connectors: 114 connectors (Company Information)
Emission Factor: 0.000441 lb/hr – connector
Calculation: 114 connectors * 0.000441 lb/hr-connector * 0.49 * 8760 hr/yr * 0.0005 ton/lb = 0.11 ton/yr

Total Gas fugitive emissions – piping = 1.92 ton/yr + 0.38 ton/yr+ 0.11 ton/yr + 0.11 ton/yr = 2.52. ton/yr

Light Oil Service (<20 °API Gravity)

VOC Weight Fraction: 1.00 (Company Estimate)

Valves: 60 valves (Company Information)
Emission Factor: 0.00551 lb/hr - valve
Calculation: 60 valves * 0.00551 lb/hr-valve * 8760 hr/yr * 0.0005 ton/lb = 1.45 ton/yr

Relief Valves (Other): 6 relief valves (Company Information)
Emission Factor: 0.01650 lb/hr – relief valve
Calculation: 6 relief valves * 0.0165 lb/hr – relief valve * 8760 hr/yr * 0.0005 ton/lb = 0.43 ton/yr

Flanges: 38 flanges (Company Information)
Emission Factor: 0.000243 lb/hr - flange
Calculation: 38 flanges * 0.000243 lb/hr-flange * 8760 hr/yr * 0.0005 ton/lb = 0.04 ton/yr

Pump Seals: 2 pump seals (Company Information)
Emission Factor: 0.0287 lb/hr – pump seal
Calculation: 2 pump seals * 0.0287 lb/hr-pump seal * 8760 hr/yr * 0.0005 ton/lb = 0.25 ton/yr

Connectors: 76 connectors (Company Information)
Emission Factor: 0.000463 lb/hr – connector
Calculation: 76 connectors * 0.000463 lb/hr-connector * 8760 hr/yr * 0.0005 ton/lb = 0.15 ton/yr

Total Oil fugitive emissions – piping = 1.45 ton/yr + 0.43 ton/yr+ 0.04 ton/yr + 0.25 ton/yr + 0.15 ton/yr
= 2.32 ton/yr
Total VOC fugitives = Total Gas + Total Oil
2.52 ton/yr + 2.32 ton/yr = 4.84 ton/yr

V. Existing Air Quality

The Kerr-McGee facility is located in eastern Montana in a sparsely populated area with generally very good ventilation throughout the year. The legal description of the facility is the northeast 1/4 of the northwest 1/4 of Section 23, Township 23 North, Range 57 East, in Richland County, Montana. Richland County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI. Ambient Air Impact Analysis

The Department determined that any air impacts form the Kerr-McGee facility would be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

This permitting action will not result in an increase of emissions from the facility and is considered an administrative action; therefore, an environmental assessment is not required.

Analysis Prepared By: Christine Weaver
Date: March 16, 2006